REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

Claims 1 and 3 – 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shimadzu's AOC-17 auto injector or AOC-20 series Automatic Sampling System (hereinafter collectively referred to as "Shimadzu Product"), in view of Nobuyuki (JP 09-127078). The rejections are traversed for the following reasons.

The invention defined in claim 1 is directed to an automatic sampler having a needle, a first rinsing bath, a second rinsing bath, an exchanging mechanism, and a controller. The needle is adapted to draw a sample from a sample liquid bath and to inject the sample into a sample introducing portion which is in fluid communication with a column of a liquid chromatography. The first rinsing bath is adapted to contain a first rinsing liquid and the second rinsing bath is adapted to contain at least one kind of second rinsing liquid. The exchanging mechanism is operable to exchange the second rinsing liquid in the second rinsing bath. The controller is configured to execute, in accordance with selection of an operator, at least one of a first rinsing operation and a second rinsing operation. In the first rinsing operation, the needle is soaked in the first rinsing liquid in the first rinsing bath. In the second rinsing operation, the needle is soaked in the second rinsing liquid in the second rinsing bath while the second rinsing liquid is exchanged.

The Shimadzu Product is cited for teaching an automatic sampler with a needle, a first rinsing bath, a second rinsing bath, and a controller. Further, the Shimadzu Product is cited for teaching first and second rinsing operations. The Examiner indicates that the Shimadzu Product fails to teach or suggest the exchanging mechanism of claim 1. For this feature, the Examiner cites to Nobuyuki.

In finding that the Shimadzu Product teaches features corresponding to the first and second rinsing baths and operations, the Examiner appears to look to the three modes described in the item "Type of Sample Injection" listed in the Shimadzu Product disclosures. The three modes include a traditional mode, a solvent flush mode, and a solvent flush with a second solvent mode. As will be shown in detail below, the three modes of the Shimadzu Product do not teach or suggest the first and second rinsing baths and operations of claim 1.

To clarify the disclosure of the Shimadzu Product, applicant has submitted Japanese Utility Model Publication No. 8-10797Y2 (hereinafter, "JP '797") in an Information Disclosure Statement. JP '797 is a Japanese Utility model that is directed to the Shimadzu Product. For ease of reference, a copy of JP '797, along with an English-language machine translation from the Japanese Patent Office, is included in Appendix A of the instant Amendment.

With specific reference to Fig. 4 of JP '797, "A" denotes a sample, the Japanese characters denote air, "B" denotes a first solvent, and "C" denotes a second solvent. Fig. 4 shows conditions of at least one kind of liquid within a needle in order to explain how to inject a sample from the needle, wherein Figs. 4(a), 4(b), and 4(c) respectively correspond to the "traditional mode", the "solvent flush" mode, and the "solvent flush with a second solvent" mode. Using Fig. 4(c) as an example,

the sample (A) is stacked in the needle with a layer of air, the first solvent "B", a second layer of air, and the second solvent "C". Thereby, after the sample is injected, the solvents are emitted from the needle, thereby cleansing the needle. The layers of air serve to space the sample from the solvents, and the solvents from each other.

Accordingly, the Shimadzu Product is directed to a method of cleansing the inside of a needle by stacking solvents behind a sample with air spacing the solvents from each other and the sample. Thus, none of the three modes are related to the rinsing of a needle as is defined by claim 1, wherein the rinsing operations include soaking the needle. Further, the Shimadzu Product does not teach or suggest the presence of two different rinsing baths.

In this vein, the sample and the solvents of the Shimadzu Product are stored in vials. This disclosure merely shows vials containing a rinsing solution and does not teach or suggest a rinsing bath. In this regard, it is noted that the rinsing baths of claim 1 are adapted to allow the needle to soak therein. No such feature is taught in reference to the rinse solvent vial of the Shimadzu Product. Consequently, as a single rinsing bath is not taught or suggested, Shimadzu necessarily fails to teach or suggest the presence of two different rinsing baths.

Thus, the combination of the Shimadzu Product and Nobuyuki fails to teach or suggest a controller that is operable to selectively execute, in accordance with a selection of an operator, at least one of two different operations for rinsing a needle, as is required by claim 1. Accordingly, the combined references do not teach or suggest each and every feature of claim 1 and consequently do not render claim 1 obvious. Reconsideration and withdrawal of the rejection of claim 1 is requested.

Turning to claims 3 and 5, claim 5 is an independent claim directed to an automatic sampler, while claim 3 is an independent claim directed to a method of cleaning a needle of an automatic sampler. While the claims are unique in several respects, they do share several common features. As the common features of the claims are considered to impart patentability, the claims, with specific reference to their patentable features, will be discussed together.

The crux of the claimed inventions deals with the cleaning of the needle of an automatic sampler. In this regard, each of the claims provides a first rinsing bath and a second rinsing bath into which the needle is soaked. The first rinsing bath contains a first rinsing liquid, and a controller can selectively soak the needle in the first rinsing liquid in the first rinsing bath. The second rinsing bath contains a second rinsing liquid, and the controller can selectively soak the needle in the second rinsing liquid in the second rinsing bath.

The second rinsing bath is configured such that the second rinsing liquid contained therein is exchanged while the needle is soaked in the second rinsing bath. The structure and operation of the exchanging of the second rinsing liquid has been clarified in the claims. With reference to claim 5, the second rinsing bath has been further defined as including a top opening, with an exhaust disposed adjacent to the top opening of the second rinsing bath. As the needle is soaked in the second rinsing bath, the second rinsing liquid overflows from the second rinsing bath and is received into the exhaust. Thereby, the second rinsing liquid is exchanged from the second rinsing bath through a process of the second rinsing liquid leaving the second rinsing bath as a result of overflow (and entering the exhaust opening) and entering the second rinsing bath via the pump.

With reference to claim 3 (method claim), the "causing" step has been amended to clarify the exchanging operation as the second rinsing liquid "overflowing from a top opening of the second rinsing bath when the needle is soaked therein while simultaneously introducing second rinsing liquid into the second rinsing bath". Further, claim 3 clarifies that the second rinsing bath is provided "substantially filled with a second rinsing liquid" so as to ensure that the second rinsing liquid overflows from the second rinsing bath upon soaking of the needle therein.

As amended, the structure and operation of the exchange of the second rinsing liquid has been clarified. It is submitted that the clarifying amendments recite claim features that are not taught or suggested by the cited art.

The Shimadzu Product is cited for teaching an automatic sampler with a needle, a first rinsing bath, a second rinsing bath, and a controller. The Examiner indicates that the Shimadzu Product fails to teach or suggest the pump of claim 5 and the exchanging operation as defined by the method of claim 3. For these features, the Examiner cites to Nobuyuki.

Nobuyuki is cited for teaching the exchanging mechanism, including a pump. In Fig. 1 of Nobuyuki, a rinsing bath (20) is connected to a syringe-type "pump" (11). The pump (11) feeds a rinsing liquid to the rinsing bath (20). While not expressly discussed, it is believed that the rinsing liquid leaves the rinsing bath (20) through what appears to be a pipe or tube formed on the lower left side of the rinsing bath (20).

Thus, to the extent that Nobuyuki teaches an exchanging mechanism, the exchanging mechanism taught therein does not exchange the rinsing liquid by

pumping in fresh liquid while used liquid is expelled by overflowing from a top of the rinsing bath into an exhaust when the needle is soaked therein. The amendments made to claims 3 and 5 defining the exchanging mechanism are therefore believed to patentably distinguish the inventions defined therein from the cited art. Particularly, with reference to claim 5, the combined references fail to teach or suggest "an exhaust adjacent to the top opening of the second rinsing bath ... such that the second rinsing liquid in the second rinsing bath overflows into the exhaust when the needle is soaked in the second rinsing bath".

Accordingly, the inventions defined in claims 3 and 5 recite features that are not taught or suggested by the cited art. As such, a *prima facie* case of obviousness in support of the rejections of claims 3 and 5 has not been established. Reconsideration and withdrawal of the rejections of claims 3 and 5 is requested. Further, claims 4 and 6 depend from claims 3 and 5, respectively. Accordingly, claims 4 and 6 are considered allowable based on their dependence from allowable independent claims.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. NGB-15306.

Respectfully submitted,

RANKIN, HILL & CLARK LLP

By /Samir S.Khoury/
Samir S.Khoury, Reg. No. 60174

38210 Glenn Avenue
Willoughby, Ohio 44094-7808
(216) 566-9700

APPENDIX A

The seven sheets appended hereto include Japanese Utility Model Publication No. 8-10797Y2 and an English translation thereof.

APPENDIX A

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(71)出願人　999999999
株式会社島津製作所
京都府京都市中京区西ノ京桑原町１番地

(72)考案者　上田　雅人
京都府京都市中京区西ノ京桑原町１番地
株式会社島津製作所三条工場内

(72)考案者　三好　聡
京都府京都市中京区西ノ京桑原町１番地
株式会社島津製作所三条工場内

(74)代理人　弁理士　河▲崎▼　眞樹

審査官　河原　英雄

(56)参考文献　特開平２－40561（ＪＰ，Ａ）
実開平１－146161（ＪＰ，Ｕ）
実開平２－85361（ＪＰ，Ｕ）

(54)【考案の名称】ソルベントフラッシュオートサンプラ

1

【実用新案登録請求の範囲】

【請求項１】マイクロシリンジを備えたオートインジェクタと、試料バイアルと複数の溶媒用バイアルとを設置可能で駆動源により前記マイクロシリンジの針先へ各バイアルを移動可能としたターレットと、多数の試料バイアルを並べるラックと該ラックの試料バイアルをピックアップするサンプル搬送用爪を備え採取順に試料用バイアル及び溶媒バイアルをターレットに並べる動作を行うロボットアームとより成るオートサンプラと、溶媒の性質に応じて溶媒と試料とを連続的に或いは空気を介して吸入するマイクロシリンジ駆動機構と、を備えたことを特徴とするソルベントフラッシュオートサンプラ

【考案の詳細な説明】

〔産業上の利用分野〕

この考案は、ガスクロマトグラフ及び液体クロマトグラフ等に試料を自動的に注入するオートサンプラに関する。

2

〔従来の技術〕

バイアル瓶に入れた試料をマイクロシリンジで吸い上げガスクロマトグラフの試料導入部へ注入するときの試料注入法としては、単に試料のみを注入する方法と、先にシリンジに所定の溶媒を少し吸い上げて間に空気を入れその後一定の試料を吸入してガスクロマトグラフに注入するソルベントフラッシュ法とがある。

従来から自動的に試料を導入する場合、自動試料注入装置の下部に数本の試料バイアルをセットしたターレットを往復或いは回転移動させ該自動試料注入装置に取付けられたシリンジ保持部を上下させて試料を吸引し、導入した後シリンジを洗浄するという方式が採られている。

〔考案が解決しようとする課題〕

上記するような試料のみを吸い上げ試料導入後シリンジを洗浄する方式ではどうしてもディスクリミネーション或いはコンタミネーションを避けることは出来ない。また上記するソルベントフラッシュ方式ではディスクリミネーション或いはコンタミネーションを避けることは出来るが溶媒として内標又はリテンションインデックス用パラフィンを使用した場合、マイクロシリンジのニードル内にその溶媒が残留しそれ自体のディスクリミネーション或いはコンタミネーションが生じる恐れがあった。この考案はかかる課題を解決するためになされたものである。

〔課題を解決するための手段〕

即ち、上記する課題を解決する手段としてこの考案のソルベントフラッシュオートサンプラは、マイクロシリンジを備えたオートインジェクタと、試料バイアルと複数の溶媒用バイアルとを設置可能で駆動源により前期マイクロシリンジの針先へ各バイアルを移動可能としたターレットと、多数の試料バイアルを並べるラックと該ラックの試料バイアルをピックアップするサンプル搬送用爪を備え採取順に試料用バイアル及び溶媒バイアルをターレットに並べる動作を行うロボットアームとより成るオートサンプラと、溶媒の性質に応じて溶媒と試料とを連続的に或いは空気を介して吸入するマイクロシリンジ駆動機構と、を備えたことを特徴とする。

〔作用〕

上記手段とすれば、マイクロシリンジに、通常の試料のみを吸入してガスクロマトグラフや液体クロマトグラフへ注入する方法も、溶媒、空気、試料の順に吸入しガスクロマトグラフへ注入する通常のソルベントフラッシュモードによる従来の方法も可能となる。

更に、マイクロシリンジに、溶媒と試料の順に吸入し、ガスクロマトグラフへ注入するソルベントフラッシュモードによる方法も可能となる。通常、ソルベントフラッシュモードは溶媒と試料との間に空気を入れて分けるのが普通であるが、溶媒の粘性が高い場合高温状態となると空気が膨張し旨く試料を吸入出来ないことが多い。しかしこの方法によればそのようなことがなく且つディスクリミネーション等も防止することが出来る。

或いは上記手段によれば、マイクロシリンジには溶媒、空気、別の溶媒、空気、試料の順に吸入し、ガスクロマトグラフへ注入するソルベントフラッシュモードによる方法も可能となる。別の溶媒としては内標或いはリテンションインデックス用パラフィンを入れ、きれいな先の溶媒ですべてを注入してしまうと内標等の溶媒によるディスクリミネーションやコンタミネーションも防止することが可能となる。また、ターレットには多くのバイアルを並べ自動的な繰り返し洗浄や、試料の吸入・注入を行うようにすることも出来る。

［実施例］

以下、この考案の具体的実施例について図面を参照して説明する。

第１図はこの考案のソルベントフラッシュオートサンプラを構成するオートインジェクタ１とターレット２とマイクロシリンジ３及びオートサンプラ４の斜視図である。第２図は前記マイクロリシンジ３の駆動機構を示す図である。即ち、前記オートインジェクタ１にはマイクロシリンジ３の駆動機構が設けられているが、該駆動機構はモータ５のプーリ51と固定部に取付けられたプーリ52に巻装されたベルト６に保持具７を固定した構成としてある。そして該保持具７にマイクロシリンジ３のプランジャ31を固定し、該プランジャ31をステッピングモータ５で駆動することにより試料の吸入及び注入を行うようになっている。

また、前記ターレット２には試料バイアルＡと溶媒Ｂ、溶媒Ｃ等が並べて置かれ、駆動源（図示せず）により矢印の如く往復移動させ前記マイクロシリンジ３の針先へ各バイアルを運ぶようにしてある。

前記オートサンプラ４は、第１図に示すように、多数の試料バイアルを並べるラック41と、ロボットアーム42とより構成され、該ロボットアーム42に装着されたサンプル搬送用爪43により試料バイアルをピックアップして前記ターレット２へ移送したり戻したりすることができる（第３図）。上記したように、前記マイクロシリンジ３はモータ５を駆動することにより試料を吸引しガスクロマトグラフ或いは液体クロマトグラフ（図示せず）へ注入するが、その注入後前記ターレット２に置かれた洗浄バイアルの洗浄液でマイクロシリンジ３のニードルを洗浄し、更に各内標用溶媒或いは試料を吸入する。

この考案のソルベントフラッシュオートサンプラは以上のように構成されているが、次にその具体的動作について説明する。

第４図（ａ）乃至（ｄ）はガスクロマトグラフ（又は液体クロマトグラフ）へ注入する前のマイクロシリンジ３による試料や溶媒の吸入方法についての説明図である。即ち、前記モータ５を駆動することにより次のような試料の吸入及び注入が可能となる。これらの動作は演算処理装置（CPU）により行う。

① マイクロシリンジ３には試料Ａのみを吸入してガスクロマトグラフへ注入する方法（第４図（ａ））。

② マイクロシリンジ３には溶媒Ｂ、空気、試料Ａの順に吸入してガスクロマトグラフへ注入する方法。通常のソルベントフラッシュモードである（同図（ｂ））。

③ マイクロシリンジ３には溶媒Ｂと試料Ａの順に吸入してガスクロマトグラフへ注入するソルベントフラッシュモードによる方法（同図（ｃ））。通常、ソルベントフラッシュモードは②の如く溶媒と試料との間に空気を入れて分けるのが普通であるが、溶媒Ｂが粘性の高い溶媒である場合高温状態となると空気が膨張し旨く試料を吸入出来ないことが多い。しかしこの方法によればその

ようなことがなく且つディスクリミネーション等も防止することが出来る。

④ マイクロシリンジ３には溶媒Ｃ、空気、溶媒Ｂ、空気、試料Ａの順に吸入してガスクロマトグラフへ注入するソルベントフラッシュモードによる方法（同図（ｄ））。溶媒Ｂとしては内標或いはリテンションインデックス用パラフィンを入れ、更にきれいな溶媒Ｃですべてを注入してしまうと溶媒Ｂによるディスクリミネーションやコンタミネーションも防止することが可能となる。

第５図は前記ターレット２の端に試料バイアルＡを、順次溶媒Ｂ、廃液Ｃ′、溶媒Ｃ、廃液Ｄ′、溶媒Ｄ、廃液Ｅ′、溶媒Ｅ等のバイアルを並べマイクロシリンジ３の洗浄を繰り返すようにした場合の配置を示す。このようにターレット２には多くのバイアルを並べ自動的に洗浄、試料の吸入と注入を行うようにすることも出来る。

〔考案の効果〕

この考案のソルベントフラッシュオートサンプラは以上詳述したような構成としたので、試料に応じた適切なガスクロマトグラフによる分析が可能となる。

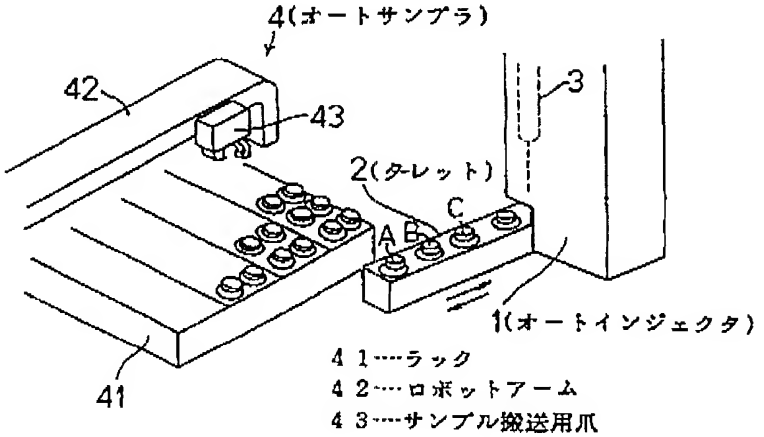
特に、溶媒と試料或いは溶媒と空気と試料をマイクロシリンジで吸入しガスクロマトグラフに注入するソルベントフラッシュモードの分析において、試料のディスクリミネーションやコンタミネーションを防止する自動分析が可能となる。

【図面の簡単な説明】

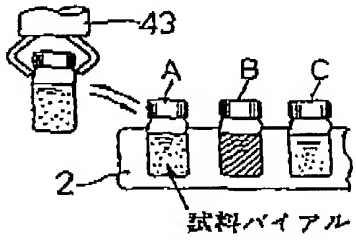
第１図はこの考案のソルベントフラッシュオートサンプラを構成するオートインジェクタとターレットとマイクロシリンジ及びオートサンプラの斜視図、第２図は前記マイクロシリンジの駆動機構を示す図、第３図は多数の試料バイアルを並べるラックと、ロボットアームとより成るオートサンプラのサンプル搬送用爪により試料バイアルをピックアップしてタレットへ移送したり戻したりする場合の説明図、第４図（ａ）乃至（ｄ）はガスクロマトグラフへ注入する前のマイクロシリンジによる試料や溶媒の吸入方法についての説明図、第５図はタレットの端に試料バイアルを、順次多数の溶媒用バイアル並べマイクロシリンジの洗浄を繰り返すようにした場合の配置を示す図である。

１……オートインジェクタ、２……ターレット
３……マイクロシリンジ、４……オートサンプラ
41……ラック、42……ロボットアーム
43……サンプル搬送用爪

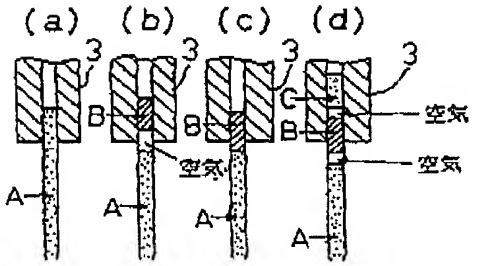
【第１図】



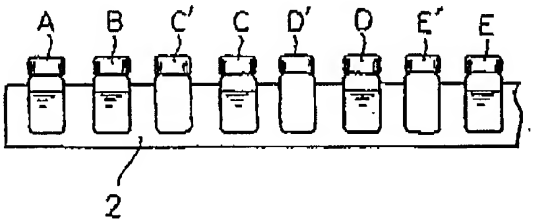
【第３図】



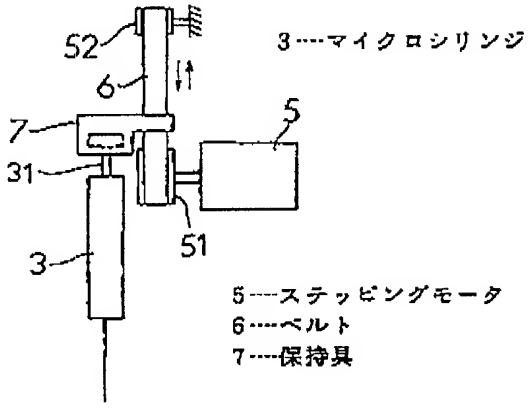
【第４図】



【第５図】



【第２図】



DETAILED DESCRIPTION

[Detailed explanation of the device]
[Industrial Application]
This device is related with the autosampler which pours a sample into a gas chromatograph, a liquid chromatograph, etc. automatically.
[Description of the Prior Art]
As a sample injection method when sucking up the sample put into the vial bottle by a micro syringe and pouring in to the sample induction of a gas chromatograph, There are a method of pouring in only a sample, and a solvent Frasch process which suck up a little predetermined solvent to a syringe previously, puts in air in between, inhales a fixed sample after that, and is poured into a gas chromatograph.
When introducing a sample automatically from the former, make the syringe attaching part which made go, come back to or rotate the turret which set several sample vials to the lower part of an automatic sample injector, and was attached to this automatic sample injector go up and down, and a sample is attracted, After introducing, the method of washing a syringe is taken.
[Problem(s) to be Solved by the Device]
By the method which sucks up only a sample which is described above and washes the syringe after sample introduction, discrimination or contamination is never unavoidable. Although discrimination or contamination could be avoided by the solvent flash plate method described above, when paraffin for the inner mark or retention indexes is used as a solvent, There was a possibility that the solvent might remain and the discrimination or contamination of itself might arise in the needle of a micro syringe. This device is made in order to solve this technical problem.
[The means for solving a technical problem]
Namely, as a means to solve a technical problem described above a solvent flash plate autosampler of this device, A turret which could install an auto injector provided with a micro syringe, and a sample vial and two or more vials for solvents, and made each vial movable to a needle tip of a first half micro syringe by a driving source, An autosampler which comprises a robot arm which performs operation which is provided with a nail for sample conveyance which takes up a sample vial of a rack and this rack which puts many sample vials in order, and arranges a vial for samples, and a solvent vial in a turret in order of extraction, It had micro syringe drive mechanism which inhales a solvent and a sample via air according to character of a solvent continuously.
[Function]
If it is considered as the above-mentioned means, the method of inhaling only the usual sample to a micro syringe and pouring into it to a gas chromatograph or a liquid chromatograph and the conventional method by the usual solvent flash mode which is inhaled in order of a solvent, air, and a sample, and is poured in to a gas chromatograph will become possible.
The method by the solvent flash mode which is inhaled to a micro syringe in order of a solvent and a sample, and is poured into it to a gas chromatograph also becomes possible. Usually, although it is common to put in and divide air between a solvent and a sample as for a solvent flash mode, if it will be in a high temperature state when the viscosity of a solvent is high, air expands and a sample cannot be inhaled well in many cases. However, according to this method, there is no such thing and discrimination etc. can be prevented.
Or according to the above-mentioned means, to a micro syringe, it inhales in order of a solvent, air, another solvent, air, and a sample, and the method by the solvent flash mode poured in to a gas chromatograph also becomes possible. If

paraffin for the inner mark or retention indexes is put in as another solvent and all are poured in with the solvent of the beautiful point, it will become possible to also prevent the discrimination and contamination by a solvent, such as an inner mark. Many vials are arranged in a turret and automatic repetition washing, and inhalation and pouring of a sample can be performed.
[Example]
Hereafter, the concrete example of this device is described with reference to drawings.
Drawing 1 is a perspective view of the auto injector 1, the turret 2, the micro syringe 3, and the autosampler 4 which constitutes the solvent flash plate autosampler of this device. Drawing 2 is a figure showing the drive mechanism of said micro RISHINJI 3. That is, although the drive mechanism of the micro syringe 3 is formed in said auto injector 1, this drive mechanism is considered as the composition which fixed the holding fixture 7 to the belt 6 looped around the belt pulley 51 of the motor 5, and the belt pulley 52 attached to the holding part. And the plunger 31 of the micro syringe 3 is fixed to this holding fixture 7, and inhalation and pouring of a sample are performed by driving this plunger 31 with the stepping motor 5.
Sample vial A, the solvent B, the solvent C, etc. are put in order and put on said turret 2, reciprocation moving is carried out like an arrow by a driving source (not shown), and each vial is carried to the needle tip of said micro syringe 3.
The rack 41 with which said autosampler 4 puts many sample vials in order as shown in Drawing 1, It can comprise the robot arm 42, and a sample vial is taken up with the nail 43 for sample conveyance with which this robot arm 42 was equipped, and it can transport to said turret 2, or can return (Drawing 3). As described above, by driving the motor 5, said micro syringe 3 attracts a sample and pours it in to a gas chromatograph or a liquid chromatograph (not shown), but. The penetrant remover of the washing vial put on the account turret 2 of pouring back to front washes the needle of the micro syringe 3, and each solvent for the inner mark or a sample is inhaled further.
Although the solvent flash plate autosampler of this device is constituted as mentioned above, it explains that concrete operation below.
Drawing 4 (a) thru/or (d) is an explanatory view about the inhalation method of the sample by the micro syringe 3 before pouring in to a gas chromatograph (or liquid chromatograph), or a solvent. That is, inhalation and pouring of the following samples are attained by driving said motor 5. An arithmetic processing unit (CPU) performs these operations.
** How to inhale the sample A to the micro syringe 3, and pour in to a gas chromatograph (Drawing 4 (a)).
** How to inhale in order of the solvent B, air, and the sample A to the micro syringe 3, and pour in to a gas chromatograph. It is the usual solvent flash mode (the figure (b)).
** A method by the solvent flash mode which is inhaled in order of the solvent B and the sample A to the micro syringe 3, and is poured in to a gas chromatograph (the figure (c)). Usually, although it is common to put in and divide air between a solvent and a sample like ** as for a solvent flash mode, if it will be in a high temperature state when the solvent B is a viscous high solvent, air expands and a sample cannot be inhaled well in many cases. However, according to this method, there is no such thing and discrimination etc. can be prevented.
** A method by the solvent flash mode which is inhaled to the micro syringe 3 in order of the solvent C, air, the solvent B, air, and the sample A, and is poured in to a gas chromatograph (the figure (d)). If paraffin for the inner mark or retention indexes is put in as the solvent B and all are poured in with the still more beautiful solvent C, it will become possible to also prevent the discrimination and contamination by the solvent B.
Drawing 5 shows the arrangement at the time of putting in order vials, such as the solvent B, waste fluid C', the solvent C, waste fluid D', the solvent D, waste fluid E', and the solvent E, for sample vial A one by one, and making it repeat washing of the micro syringe 3 at the end of said turret 2. Thus, many vials are arranged in the turret 2 and washing, and inhalation and pouring of a sample can be performed automatically.
[Effect of the Device]
Since the solvent flash plate autosampler of this device had composition which was explained in full detail above, analysis by the suitable gas chromatograph according to a sample is attained.
In analysis of the solvent flash mode which inhales a solvent, a sample, or a

solvent, air and a sample by a micro syringe, and is especially poured into a gas chromatograph, the automatic analysis which prevents the discrimination and contamination of a sample is attained.
[Brief Description of the Drawings]
The auto injector, turret and micro syringe from which Drawing 1 constitutes the solvent flash plate autosampler of this device, and the perspective view of an autosampler, The figure in which Drawing 2 shows the drive mechanism of said micro syringe, and the rack with which Drawing 3 puts many sample vials in order, The explanatory view in the case of taking up a sample vial with the nail for sample conveyance of the autosampler which comprises a robot arm, and transporting to a turret, or returning, The explanatory view about the inhalation method of the sample by the micro syringe before pouring in Drawing 4 (a) thru/or (d) to a gas chromatograph, or a solvent, Drawing 5 is a figure showing the arrangement at the time of making it repeat washing of many vial **** micro syringes for solvents for a sample vial successively at the end of a turret.
1 .... An auto injector, 2 .... Turret
3 .... A micro syringe, 4 .... Autosampler
41 .... A rack, 42 .... Robot arm
43 .... Nail for sample conveyance

[The scope of a claim for utility model registration]
[Claim 1]A solvent flash plate autosampler comprising:
An auto injector provided with a micro syringe.
A turret which could install a sample vial and two or more vials for solvents, and made each vial movable to a needle tip of said micro syringe by a driving source.
An autosampler which comprises a robot arm which performs operation which is provided with a nail for sample conveyance which takes up a sample vial of a rack and this rack which puts many sample vials in order, and arranges a vial for samples, and a solvent vial in a turret in order of extraction.
Micro syringe drive mechanism which inhales a solvent and a sample via air according to character of a solvent continuously.